{In Archive} Comments on Detrex/URS Report dated 10/13/2011

Robert Rule to: OWEN THOMPSON, William Earle 10/31/2011 03:26 PM
Cc: "David Rymph", "Wayne Reiber", "Rick Hughes", "Joseph Heimbuch", "Nam Baek", "Rick Mason", "Tom Steib", "Ralph Cascarilla"

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FBAG Comments on URS Report Dated October 13_rev_1.pdf

Owen,

The Fields Brook Action Group has reviewed the above mentioned report from Detrex / URS. The attached document specifically addresses our comments on the referenced report. However, these comments need to be reviewed in context with all previous comments / submissions by FBAG, including the July 2011 presentation regarding the Detrex DNAPL. In light of the discussions between counsel for EPA and FBAG, we request that these comments be inserted into the administrative record for the Fields Brook Superfund Site.

If you have any questions, please contact me.

Thanks
Bob

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FBAG Comments on URS Report Dated October 13, 2011

Field Brook Superfund Site, Ashtabula, Ohio

Introduction and General Comments

The Fields Brook Action Group (FBAG) has reviewed the URS letter report (URS, 2011a) discussing the additional surface water/sediment data and reconnaissance information (including a camera survey) obtained in the eastern section (*i.e.*, east of State Road) of the DS Tributary in mid-September, 2011. Surface break outs of Detrex DNAPL have repeatedly been observed in the western section of the DS Tributary (*i.e.*, west of State Road) since 2005. In its Second Five Year Remedy Review of the Fields Brook Site (US EPA, 2009), US EPA concluded that continued surface manifestations of Detrex DNAPL in the DS Tributary would lead to a reassessment of the short-term protectiveness of the Detrex Remedy. As anticipated in US EPA's Second Five-Year Review, the problem of DNAPL manifestations and need for assessments in the DS Tributary, west of State Road, persists. Detrex DNAPL was again observed in April 2011 in the western section of the DS Tributary, a little over a year after it was remediated. The recent URS work and other evaluations conducted both by Detrex (URS, 2011b) and by the FBAG (Gradient, 2011) have been undertaken to understand the potential sources and mechanisms of Detrex DNAPL entering the DS Tributary.

The URS work confirms the prior FBAG findings that Detrex-related contamination is present in the eastern section of the DS Tributary.[1] One of the most significant findings of this URS study is the confirmation that a 15-inch pipe, which discharges into the DS Tributary, is associated with the Detrex Facility and was not "plugged" properly. This 15-inch pipe was identified by the FBAG in July 2011 and undisclosed by Detrex or URS in their prior site evaluations. An examination of the surface water quality data collected in the 15-inch pipe indicates that the detected volatile organic compound (VOC) concentrations are indicative of DNAPL (*i.e.*, water in this pipe is coming in contact with DNAPL). Detrex should conduct additional investigations to evaluate whether this pipe, believed to be associated with a former Detrex storm water sewer system, was serving as a conduit for DNAPL migration into the DS Tributary. Merely plugging the pipe, without understanding the role of the pipe in DNAPL transport and the cause of the DNAPL transport could result in DNAPL finding another preferential pathway and breaking out at another location. Overall, the FBAG believes these latest findings further substantiate its contention that Detrex and URS have failed to adequately characterize the Site in relation to the DNAPL contamination.

Detailed Comments

1. Additional investigation is needed to understand conditions in the 15-inch pipe flows into the DS Tributary near State Street, and the role this pipe may have played in acting as a conduit for DNAPL migration. The Detrex investigation has demonstrated that this pipe "appears to be part of a former storm water system," is "partially plugged," and full of sediment. Given that this pipe contained water both during the FBAG and URS investigations and had high VOC concentrations (7,644 µg/l) in the FBAG sampling,[2] this pipe needs to be further investigated because:

- The pipe originates at the Detrex facility and is associated with a former storm water system. It is not fully clear what URS means by its statement that the pipe was "partially

[1] Note, Gradient and *de maximis* observed the presence of sheens and strong odors, in the eastern section of the DS Tributary during the July 2011 investigation. In addition, VOCs were detected in surface water and sediment samples – findings that have been confirmed by this URS study.

[2] URS did not collect a sample for analysis from this pipe in September.

plugged" – was some storm water from the Detrex facility leaking through the "partially plugged" pipe into the DS Tributary?

- URS should sample the sediment within the pipe since that would provide a much better indication of whether DNAPL was migrating *via* the pipe into DS Tributary.
- Although water was found flowing through the pipe at a low rate during both investigations, the question of how much water flows through this pipe during a storm event needs to be understood.
- EPA should also request that Detrex sample storm water on their Facility (or provide that data if available) to better understand the role of this mechanism in affecting the western section of the DS Tributary (*via* inputs from the 15-inch pipe).

It is our opinion that merely plugging the 15-inch is inadequate; the steps defined above should be undertaken to fully understand whether this pipe was serving as a preferential conduit for DNAPL migration to the DS Tributary and take appropriate steps to completely eliminate this pathway.

2. The URS report states that "The reported surface water results are not indicative of the presence of DNAPL based on accepted rules of thumb for dissolved phase constituents in contact with free product."

- First, it is not clear which rule of thumb is being referenced to since no source is cited. The typical thumb rule (*e.g.*, aqueous concentrations exceeding 1% of solubility limit; USEPA, 1992, USEPA, 1994) applies to groundwater, and not surface water. VOCs are expected to be readily volatilized into air and not be present at high concentrations in surface water, therefore, utilizing a groundwater based thumb rule to surface water is misleading and inappropriate.
- Second, when a multi-component mixture is present, the propensity of a compound to dissolve in water is reduced. Consequently, an effective solubility needs to be calculated for each compound in the mixture to evaluate the potential for DNAPL presence (USEPA, 1992). Applying this approach indicates that water concentrations measured in the 15-inch pipe exceed 1% of their effective solubility limits for 1,1,2-trichloroethane and 1,2-dichloroethene (Table 1), even with loss of VOCs due to volatilization. Therefore, contrary to URS' assertion, water in the 15-inch pipe is coming in contact with DNAPL.

This conclusion highlights the need for further investigation of the 15-inch pipe and other DNAPL pathways associated with the Detrex Site.

3. In their report, URS dismisses elevated VOC concentrations (3,790 µg/l) detected in a water sample collected by the FBAG, because the sample was collected along the bank and not within the DS Tributary. The objectives of the FBAG sampling was to understand if contamination is present in and/or near the eastern portion of the DS Tributary and could migrate to the western section of the stream. The presence of elevated VOC concentrations in a sample collected a few feet away from the DS Tributary is clear indication of the presence of contamination in the vicinity of the stream that could be readily mobilized into the stream. Therefore, dismissing these concentrations is inappropriate.

4. The FBAG disagrees with the URS conclusion that "The data continues to support the historic nature of noted impacts in the downstream DS Tributary area and is not the result of ongoing releases

from the Detrex Site." In our prior comments (Gradient, 2011), we have presented multiple lines of evidence indicating that the continued manifestation of DNAPL in the DS tributary is a result of continued DNAPL migration from the Detrex source areas. In addition, we disagree with the URS characterization that the DNAPL observations in the DS Tributary are "historic" because:

- Our understanding is that the DS Tributary did not convey Detrex process water historically and is hence not expected to have contained water containing DNAPL.
- FBAG is not aware of any data that would demonstrate that the contamination in the downstream section of the DS Tributary is historic.
    - ► It would be extremely useful if Detrex/URS could provide any data, chemical or otherwise (*e.g.*, field or photo logs), that would demonstrate that the contamination (*i.e.*, presence of significant quantities of DNAPL) in the downstream section of the DS Tributary is historic.

References

Gradient. 2011. "Comments on Detrex's Source Remedy Modification and DS Tributary Excavation Work Plans, Fields Brook Superfund Site, Ashtabula, Ohio (Draft)." Submitted to US EPA. 31p. June 27.

URS Corp. 2011a. "Letter Report to W. Thompson (EPA Region V) re: DS Tributary (East) Work Plan Letter Report, Detrex Source Control Area – Fields Brook Superfund Site. Detrex Corporation, Ashtabula, Ohio." Report to Detrex Corp. Docket No. V-W-98-C-450. October 13.

URS Corp. 2011b. "Letter Report to W. Thompson (EPA Region V) re: Field Inspection and Analytical Results for the DS Tributary Sediment Sampling, Detrex Corporation, Ashtabula, Ohio." Report to Detrex Corp. Docket No. V-W-98-C-450. May.

US EPA. 1992. "Estimating Potential for Occurrence of DNAPL at Superfund Sites." January.

US EPA. 1994. "DNAPL Site Characterization." September.

US EPA. 2009. "Second Five-Year Review Report for Fields Brook Site, Ashtabula, Ohio." June.

Table 1
Comparison of DS Tributary Sampling Results to Effective Solubility Limits
Fields Brook Superfund Site
Ashtabula, OH

Compound	Composition of Detrex DNAPL from MW-07S (µg/kg) [1]	Solubility Limit (mg/L)	Molecular Weight (g/mole)	Mole Fraction	Effective Solubility (µg/L) [2]	1% Effective Solubility (µg/L)	15" Detrex Stormwater Pipe at State Road Culvert (µg/L)
1,1,2-Trichloroethane	150,000	1100	133.41	0.0003	295	3	45
1,2-Dichlorobenzene	430,000	80	147	0.001	56	1	NA
Chloroform	680,000	7950	119.4	0.001	10792	108	20
Tetrachloroethylene	45,000,000	206	165.8	0.065	13327	133	70
Trichloroethylene	290,000,000	1280	131.4	0.526	673345	6733	1100 D
1,2-Dichloroethylene (total)	1,300,000	3,500	96.94	0.003	11188	112	820 D
1,1-Dichloroethene	480,000	2,420	96.94	0.001	2856	29	8.8
1,1,2,2-tetrachloroethane	260,000,000	2,870	167.85	0.369	1059642	10596	5600
Hexachloroethane	20,000,000	50	236.74	0.020	1007	10	NA
Hexachlorobutadiene	8,500,000	3	260.76	0.008	25	0.2	NA
Hexachlorobenzene	4,600,000	0.006	284.78	0.004	0.02	0.0002	NA
4-chloro-3-methylphenol	950,000	3,830	142.59	0.002	6082	61	NA

Notes:

NA - Not Analyzed

1. de maximis, Inc. 2005. Fields Brook Action Group Report of 2005 DNAPL Investigation, Fields Brook Superfund Site, Ashtabula, Ohio. September 30.
2. Effective Solubility = Solubility Limit x Initial Mole Fraction
3. Data in bold red indicates that the concentration exceeds 1% of the calculated effective solubility limit.